

## REMARKS

Claims 1-39 are now pending in the application. Claims 1-20 and 24-26 are rejected. Claims 21-23 are objected to. Claims 37-39 are new. Minor amendments have been made to the claims to overcome objections to the claims because of certain informalities. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

### REJECTION UNDER 35 U.S.C. § 101

Claims 25-36 stand rejected under 35 U.S.C. § 101 because the claimed invention is not directed to non-statutory subject matter. This rejection is respectfully traversed.

Claims 25-31 are amended to recite a machine-readable medium for use with a processor having a memory. Claims 32-36 also are amended to recite a machine-readable medium for use with a processor having a memory. Applicants respectfully request that the rejection of claims 25-36 under 35 U.S.C. § 101 be withdrawn.

### REJECTION UNDER 35 U.S.C. § 102

Claims 1-14, 16-20, 24-26, and 28-36 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Lin et al. (U.S. Pat. No. 6,205,239). This rejection is respectfully traversed.

At the outset, Applicants note that independent claim 1 is amended to recite a "method enabling automated repair of defects in a composite structure formed with a material placement machine that lays composite material in one or more courses

and one or more plies to form the structure, the method comprising: inspecting a course of the composite structure for defects ...”.

Lin et al. describe using a computer and an ion beam machine to repair a defect in a semiconductor wafer (col. 22, line 65-col. 24, line 67). The wafer apparently is manufactured and then loaded by a wafer loader onto a movable xy stage for anomaly detection (col. 8, line 60- col. 9, line 12). Lin et al. do not describe the manner of manufacturing the wafer. Thus Lin et al. do not teach or suggest “a composite structure formed with a material placement machine that lays composite material in one or more course and one or more plies to form the structure”, nor do they teach or suggest “inspecting a course of the composite structure for defects”. Further, Lin et al. do not teach or suggest “...automatically causing the material placement machine to return to and replace material sufficient for repairing a defect...” as recited in amended claim 1. Claim 1 therefore should be allowed. Claims 2-6 depend from claim 1. Applicants submit that when the recitations of claims 2-6 are considered together with the recitations of claim 1, claims 2-6 also should be allowed.

Independent claim 7 is amended to recite “...using a material placement machine to lay one or more courses and one or more plies of composite material to form a composite structure; inspecting the one or more courses for defects...” Lin et al. describe using a computer and an ion beam machine to repair a defect in a semiconductor wafer (col. 22, line 65-col. 24, line 67). Lin et al. do not teach or suggest using a material placement machine to lay one or more courses and one or more plies of composite material to form a composite structure, nor do they teach or suggest automatically causing the material placement machine to return to a defect, as recited in

amended claim 7. Claim 7 therefore should be allowed. Claims 8-12 depend from claim 7. Applicants submit that when the recitations of claims 8-12 are considered together with the recitations of claim 7, claims 8-12 also should be allowed.

Independent claim 13 is amended to recite "...using a material placement machine to lay one or more courses and one or more plies of composite material to form a composite structure..." Lin et al. describe using a computer and an ion beam machine to repair a defect in a semiconductor wafer (col. 22, line 65-col. 24, line 67). Lin et al. do not teach or suggest using a material placement machine to lay one or more courses and one or more plies of composite material to form a composite structure, nor do they teach or suggest automatically causing the material placement machine to return to the defect location, as recited in amended claim 13. Claim 13 therefore should be allowed. Claims 14-24 depend from claim 13. Applicants submit that when the recitations of claims 14-24 are considered together with the recitations of claim 13, claims 14-24 also should be allowed.

Referring to independent claim 25, the claim is amended to recite a machine-readable medium as previously discussed in relation to the rejection under 35 U.S.C. § 101. Additionally, claim 25 is amended to recite "...instructions to cause the processor to access positional data defining a defect location on a composite structure formed by a material placement machine that lays composite material in one or more courses and one or more plies to form the structure..." .

Lin et al. describe using a computer and an ion beam machine to repair a defect in a semiconductor wafer (col. 22, line 65-col. 24, line 67). Lin et al. do not describe a manner in which the wafer is manufactured. Lin et al. do not teach or suggest defining a

defect location on “a composite structure formed by a material placement machine that lays composite material in one or more courses and one or more plies...”. Further, Lin et al. do not teach or suggest causing the material placement machine to return to the defect location, as recited in claim 25. Claim 25 therefore should be allowed. Claims 26-31 depend from claim 25. Applicants submit that when the recitations of claims 26-31 are considered together with the recitations of amended claim 25, claims 26-31 also should be allowed.

Referring to independent claim 32, the claim is amended to recite a machine-readable medium as previously discussed in relation to the rejection under 35 U.S.C. § 101. Additionally, claim 32 is amended to recite “...instructions to cause the processor to access positional data defining a defect location on a composite structure formed by a material placement machine that lays composite material in one or more courses and one or more plies to form the composite structure...”.

Lin et al. describe using a computer and an ion beam machine to repair a defect in a semiconductor wafer (col. 22, line 65-col. 24, line 67). Lin et al. do not describe a manner in which the wafer is manufactured. Lin et al. thus do not teach or suggest defining a defect location on “a composite structure formed by a material placement machine that lays composite material in one or more courses and one or more plies...”. Further, Lin et al. do not teach or suggest causing the material placement machine to return to the defect location, as recited in claim 32. Claim 32 therefore should be allowed. Claims 33-36 depend from claim 32. Applicants submit that when the recitations of claims 33-36 are considered together with the recitations of amended claim 32, claims 33-36 also should be allowed.

Claims 13-15, 25 and 27 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Holmes et al. (U.S. Pat. No. 6,799,619). This rejection is respectfully traversed.

With respect to independent claim 13, Holmes et al. disclose a fiber placement machine including closed loop control system (col. 2, lines 18-31). A marking device 11 is used to mark areas of fiber tape that correspond to areas where a defect is present. The marking on the fiber tapes enables the location of the defects to be subsequently readily identified either automatically or manually (col. 3, lines 23-31). The mark may subsequently be detected by a machine that automatically discards or repairs the affected region of a composite structure (col. 8, lines 23-36). Nowhere is it described or suggested, however, what kind of machine might be used to make repairs, nor is it described how such a machine would automatically discard or repair the affected region. Holmes et al. do not describe or suggest automatically causing the fiber placement machine to return to a defect location to make such repairs. To the contrary, Holmes et al. teach continuing operation of the fiber placement machine while adjusting various system parameters to correct or avoid defects (col. 2, lines 18-31). In contrast, the method recited in independent claim 13 includes "...electronically accessing positional data defining a defect location on a composite structure; and automatically causing the material placement machine to return to the defect location as defined by the positional data." A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference, arranged as in the claim (MPEP Section 2131). Anticipation by inherent disclosure is appropriate only when the reference discloses prior art that must

*necessarily* include the unstated limitation. Transclean Corp. v. Bridgewood Services, Inc., 290 F. 3d 1364, 62 USPQ 2d 1865 (Fed. Cir. 2002). Claim 13 therefore should be allowed.

Claims 14-24 depend on claim 13. Applicants submit that when the recitations of claims 14-24 are considered together with the recitations of claim 13, claims 14-24 also should be allowed.

Referring to independent claim 25, the claim is amended as discussed above. As also previously discussed with reference to claim 13, Holmes et al. do not describe or suggest automatically causing the fiber placement machine to return to a defect location. Moreover, Holmes et al. do not describe or suggest automatically causing the fiber placement machine to place material sufficient for repairing the defect at the defect location. Claim 25 therefore should be allowed.

Claims 26-31 depend from claim 25. Applicants submit that when the recitations of claims 26-31 are considered together with the recitations of claim 25, claims 26-31 also should be allowed.

Further, referring to claim 27 (dependent on claim 25), Holmes et al. do not teach or suggest automatically causing the material placement machine, after completing a ply of the composite structure, to return to a course of the ply in which a defect is located and place material along the course sufficient for repairing the defect. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference, arranged as in the claim (MPEP Section 2131). Anticipation by inherent disclosure is appropriate only when the reference discloses prior art that must *necessarily* include the unstated

limitation. Transclean Corp. v. Bridgewood Services, Inc., 290 F. 3d 1364, 62 USPQ 2d 1865 (Fed. Cir. 2002). Claim 27 therefore should be allowed.

**ALLOWABLE SUBJECT MATTER**

The Examiner states that claims 21-23 would be allowable if rewritten in independent form. Accordingly, Applicants have added claims 37-39. Specifically, new claim 37 includes the recitations of claims 13, 20 and 21. New claim 38 includes the recitations of claims 13, 20 and 22. New claim 39 is dependent on new claim 38 and includes the recitations of claim 23. Therefore, new claims 37-39 should be in condition for allowance.

**CONCLUSION**

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (314) 726-7521.

Respectfully submitted,

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